

## Supplementary article data

# Gait improvement surgery in ambulatory children with diplegic cerebral palsy

## A 5-year follow-up study of 34 children

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Table 2. Gait function before surgery and change from preoperatively to 5 years postoperatively according to GMFCS levels II and III, assessed with the functional mobility scale (FMS) and expressed as mean score (range)

| Time                     | Distance (m) | GMFCS II<br>FMS level<br>(n = 21) | GMFCS III<br>FMS level<br>(n = 9) | p-value <sup>a</sup> |
|--------------------------|--------------|-----------------------------------|-----------------------------------|----------------------|
| Preop.                   | 5            | 5.0 (5–5)                         | 2.4 (2–4)                         |                      |
| Preop.                   | 50           | 4.3 (1–5)                         | 1.9 (1–4)                         |                      |
| Preop.                   | 500          | 2.9 (1–5)                         | 1.1 (1–2)                         |                      |
| Change preop. to 5 years | 5            | 0.1 (0–1)                         | 1.8 (0–3)                         | < 0.001              |
| Change preop. to 5 years | 50           | 0.5 (0–4)                         | 1.2 (0–3)                         | 0.2                  |
| Change preop. to 5 years | 500          | 1.6 (0–4)                         | 1.2 (0–4)                         | 0.7                  |

GMFCS: gross motor function classification system;  
n: number of children;  
preop.: preoperatively; 5 years: 5 years postoperatively.  
<sup>a</sup> p-value refers to comparison between GMFCS II and III.

Table 6. Additional orthopedic procedures proposed at the 5-year follow-up in 14 children with spastic diplegia

| Surgical procedures          | n1/n2 | Indications              |                    |                     |                    |
|------------------------------|-------|--------------------------|--------------------|---------------------|--------------------|
|                              |       | Gait analysis<br>Relapse | Deterio-<br>ration | Clinical<br>Relapse | Deterio-<br>ration |
| Psoas                        | 3/5   | 0                        | 5                  |                     |                    |
| Hamstrings                   | 5/9   | 0                        | 9                  |                     |                    |
| Rectus femoris               | 1/2   | 0                        | 2                  |                     |                    |
| Gastrocnemius/Achilles       | 6/9   | 4                        | 5                  |                     |                    |
| Femoral osteotomy            | 4/6   | 1                        | 5                  |                     |                    |
| Adductors                    | 5/8   |                          |                    | 2                   | 6                  |
| Foot operations <sup>a</sup> | 6/12  |                          |                    | 0                   | 12                 |
| Total                        | /51   | 5                        | 26                 | 2                   | 18                 |

n1: number of children; n2: number of procedures.  
<sup>a</sup> Foot operations included 2 subtalar arthrodeses, 3 triple arthrodeses, 4 hallux valgus corrections, and 3 hammer toe operations

Table 4. Pre- and postoperative kinematic results at the ankle level according to operations at this level, expressed as mean (SD) in degrees

| Operation<br>Parameter  | Preop.    | p-value <sup>a</sup> | 1 year    | p-value <sup>b</sup> | 5 years   | p-value <sup>c</sup> | Normal material |
|---|-----------|----------------------|-----------|----------------------|-----------|----------------------|-----------------|
| Achilles tendon lengthening or gastrocnemius recession (n = 17) |           |                      |           |                      |           |                      |                 |
| Max. dorsiflexion stance phase                                  | -8.2 (16) | < 0.001              | 13 (6.4)  | 0.07                 | 9.2 (12)  | 0.006                | 13 (4)          |
| Max. dorsiflexion swing phase                                   | -15 (15)  | < 0.001              | 3.9 (7.0) | 0.1                  | 1.0 (12)  | 0.003                |                 |
| No ankle operation (n = 17)                                     |           |                      |           |                      |           |                      |                 |
| Max. dorsiflexion stance phase                                  | 18 (9.7)  | 0.2                  | 16 (10)   | 0.4                  | 12 (9.9)  | 0.01                 |                 |
| Max. dorsiflexion swing phase                                   | 8.9 (9.1) | 0.7                  | 9.7 (7.6) | 0.01                 | 5.1 (8.1) | 0.008                |                 |

SD: standard deviation; n: number of children.  
<sup>a</sup> Compares preoperatively and 1 year postoperatively.  
<sup>b</sup> Compares 1 year and 5 years postoperatively.  
<sup>c</sup> Compares preoperatively and 5 years postoperatively.